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AUTHOR Tanouye, Ellen K.
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ABSTRACT

A study of data on Japanese children shows that the development of verbs occurs at the same time as the development of nouns and may even precede it. The subjects for the study were two children who were learning Japanese as their first language. Four speech samples, taken between the ages of 22 and 28 months, were audiotaped and supplemented by contextual notes taken by the investigator. The results are discussed in terms of the following categories: (1) distribution of multi-word utterances; (2) utterances in verb relations with emphasis on verb plus an inflection, and constituent relations, such as subject-verb; and (3) verbs in single-word utterances. Function forms were found to predominate across all the speech samples, action forms were the second most frequent initially and, in the later speech samples, substantive forms were found to occur more frequently. The early verb development in Japanese children, according to this study, is in contrast to previous studies on English-speaking children, which show that verbs develop later than nouns. One of the conclusions suggested is that the structure of the language can have a considerable effect on the acquisition process involving nouns and verbs. (AMH)

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THE ACQUISITION OF VERBS IN JAPANESE CHILDREN

Ellen K. Tanouye
Developmental Psychology
Teachers College, Columbia University

A number of child language studies have shown that the development of verbs lags behind the development of nouns (4, 5). In the present study, data on Japanese children will show that verbs do not develop later than nouns. Instead, the development of verbs occurs at the same time as the development of nouns and may even precede it.

Subjects and Procedures. The two female subjects were later-born children of college-educated parents who lived in a university community in New Haven, Connecticut. Both children were learning Japanese as their first language, and their parents were native speakers of Japanese. The mothers spoke Japanese exclusively to their children, although they were also competent speakers of English. The speech samples in the present analysis were obtained when the children were between 22 and 28 months of age. Table 1 shows the distribution of ages, utterances, and MLU's of the speech samples.

Each child was visited in her home each month for approximately two hours. Each speech sample was an hour of the two-hour visit, taken after the child had become accustomed to the investigator's presence and before she had lost interest in the supply of investigator's toys. Although many different situations could have been sampled, data collection was restricted to mother-child interactions during unstructured play. This kept the speech samples as consistent as possible and allowed the investigator to be a participant-observer and take contextual notes.

The data were audiotaped and supplemented by the contextual notes taken by the investigator. The data were transcribed by the investigator and checked by the mothers themselves and/or another native speaker of Japanese. The data presented here are from four speech samples, as shown in Table 1 and include all of the children's spontaneous utterances. Out of a total of 1738 utterances, 66% were single-word utterances and 34% were multi-word utterances.

Results (Distribution of multi-word utterances). The first result shows the distribution of the children's multi-word utterances (see Figure 1). These utterances were categorized according to a set of semantic-syntactic categories defined by Bloom et al. (2) with one notable exception. The category of verb relations in the present study included a group of inflected verbs that was not defined in Bloom, et al.(2) and further, was not reported for the data in their study. The verb relations as defined by Bloom et al. (2) included only those utterances that expressed constituent relations, that is, subject-verb, verb-object, or subject-object. The present study included both constituent relations and inflected verbs.

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TABLE 1. Overall description of speech samples.

CHILD 1	TIME	AGE	MLU	TOTAL UTTERANCES	SINGLE WORDS	MULTI-WORDS
	1	21.5	1.10	104	93	11
	2	23.7	1.51	317	258	59
	3	25.10	2.34	316	150	166
	4	27.20	2.54	208	137	71
CHILD 2	1	22.3	1.08	83	73	10
	2	24.0	1.42	93	73	20
	3	26.5	1.43	259	179	80
	4	28.5	2.13	358	184	174

TABLE 2. Single-word utterances distribution: Action forms, substantive forms, and function forms.

CHILD 1	TIME	% FUNCTION FORMS	% ACTION FORMS	% SUBSTANTIVE FORMS
	1	57	27	16
	2	54	12	34
	3	62	18	20
	4	75	10	15
CHILD 2	1	41	37	22
	2	54	16	30
	3	52	8	40
	4	56	4	40

1. Function forms are predominant across time.
2. Action forms are initially the second most frequent forms to occur but decrease in frequency over time.
3. Substantive forms are least frequent at Time 1, but become the second most frequent form thereafter.

(Note: Function forms = relational words that refer to the existence, nonexistence, or recurrence of objects and events.
Action forms = relational words involving a relation between the child and some movement.
Substantive forms = words that refer to specific persons and objects or classes of objects.)

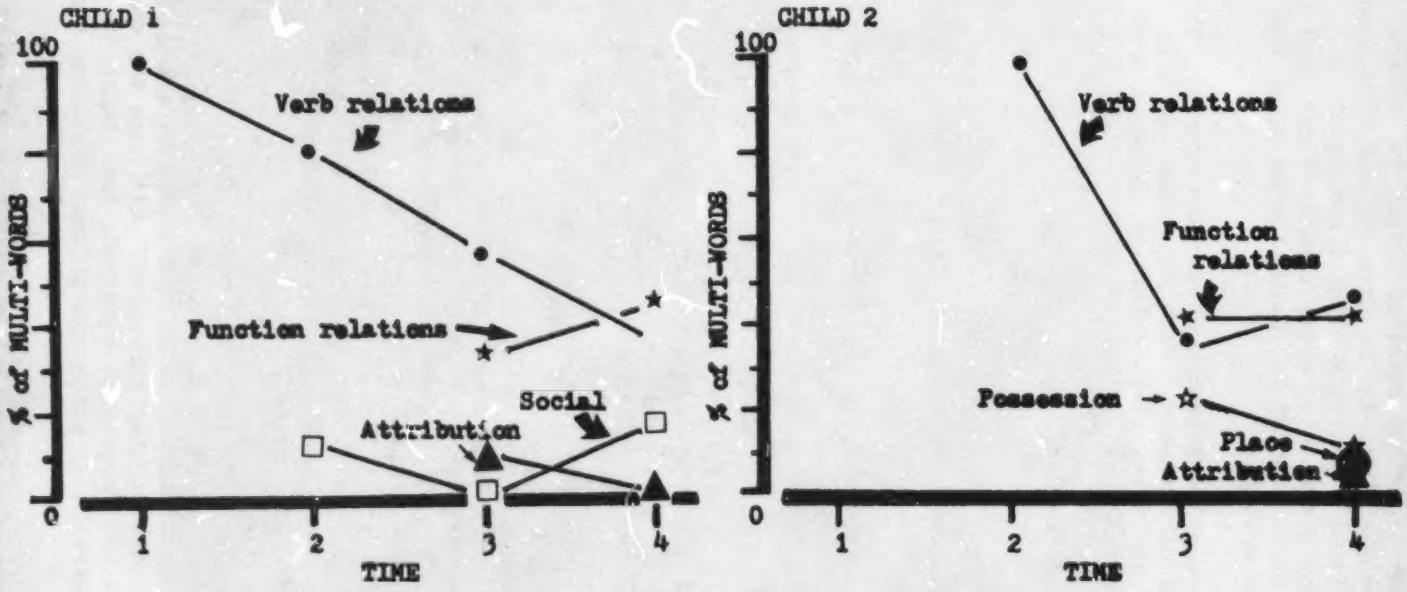

FIGURE 1. Semantic-syntactic distribution of multi-word utterances.

1. Verb relations initially predominate.
2. Other semantic-syntactic relations appear later and contribute to the data.
3. In particular, the proportion of function relations becomes approximately equal to the proportion of verb relations.

(Note: Verb relations = multi-word utterances that involve action or state relations among objects or persons.
Function relations = multi-word utterances that involve relations expressing existence, nonexistence, and recurrence.)

As can be seen in the figure, there were two major semantic-syntactic categories that occurred: function relations, that is, utterances expressing existence, nonexistence, and recurrence, and five kinds of verb relations, that is, Action, Locative Action, Locative State, State, and Notice. Other semantic-syntactic categories were observed as well but did not form a major proportion of the data, for example, Possession, Attribution, Place, or Social.

The distribution of the semantic-syntactic categories across time shows an interesting pattern of development. Verb relations are initially the major proportion of the data. Verb relations decrease proportionately over time for both children, as other semantic-syntactic categories begin to appear and contribute to the data. Of the other semantic-syntactic categories, function relations show the steadiest development. By Time 4 the proportion of function relations is approximately equal to the proportion of verb relations. To place this result in perspective, data on English-speaking children show that function relations dominate the early multi-word utterances and are followed by the later development of verb relations.

(Utterances in verb relations). Further examination of the utterances in verb relations showed an even more remarkable pattern of distribution (see Figure 2). As described above, the present study included two types of verb relations. The first was the verb plus an inflection. Most of the inflections were past tense or negation. However, inflections denoting politeness, intent, and tentativeness were also observed. The second type of verb relation was constituent relations. Constituent relations were utterances in which at least two sentence constituents were expressed, for example, subject-verb, object-verb, and less frequently, subject-object-verb. Interestingly enough, the constituent relation, subject-object, was never observed in the data here.

Initially, both children tended to use the verb constituent plus an inflection. This type of verb complexity was a striking observation, since other types of grammatical complexity such as constituent marking particles were not frequently observed in the data. Even more surprising was the fact that verb relations seemed to occur before constituent relations. That is, the children were inflecting their verbs before they were putting two words together. This finding was particularly marked in the data of Child 2. For both children, however, constituent relations formed the majority of the verb relations by Time 4.

The reason for a marked decrease in inflected verbs is not apparent. One possible explanation is that verb complexity, as expressed by verb inflections, gave way to the acquisition of other types of grammatical complexity, namely, the constituent marking particles. Although the constituent marking particles were not frequently observed, they began to occur in the children's later utterances where constituent relations were predominant.

(Verbs in single-word utterances). From the distribution of multi-word utterances and utterances in verb relations, it appeared that the

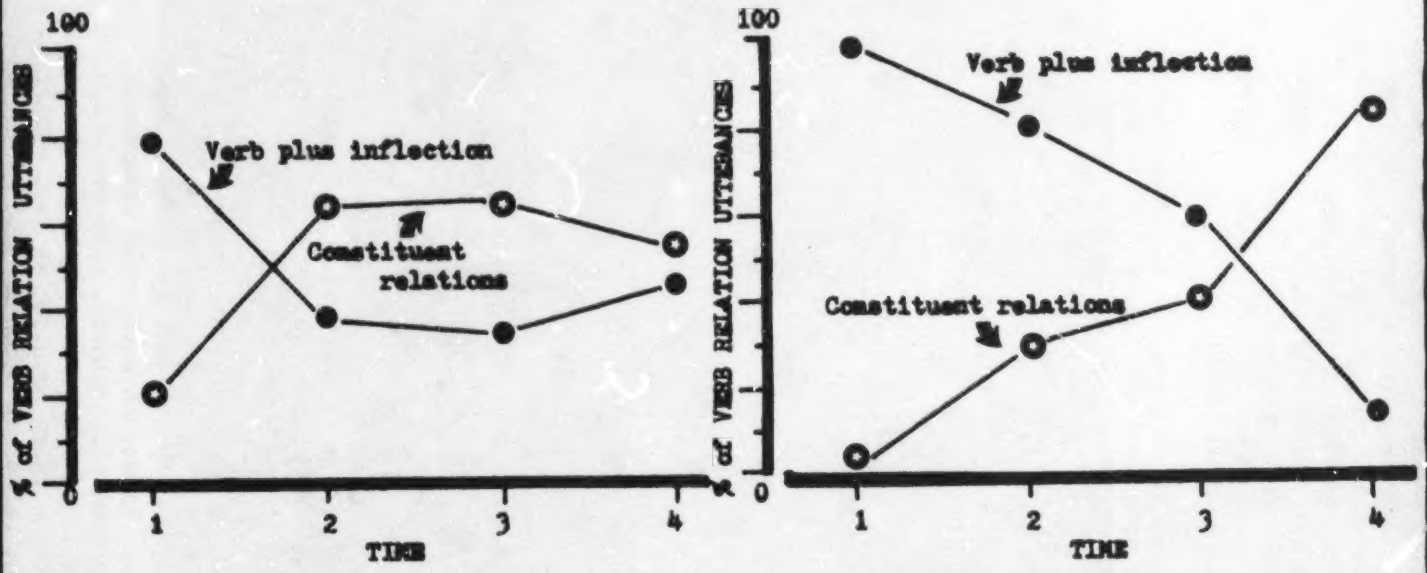

FIGURE 2. Utterances in verb relations: Constituent relations and verb plus inflection.

1. Initial expressions of verb relations are primarily the verb constituent plus an inflection.
2. Constituent relations* appear in the later samples and become predominant by Time 4.

* Constituent relations = utterances in which two sentence constituents or more are expressed.

first emergence of verbs in Japanese children was an early development. That is, the category of verb relations seemed to precede other semantic-syntactic categories in multi-word utterances. The utterances in verb relations showed that inflected verbs seemed to precede constituent relations. The next table shows the distribution of the children's verbs in single-word utterances (see Table 2). These utterances were categorized according to a set of single-word form categories defined by Bloom (1) and defined similarly by Nelson (8). The categories included action forms, substantive forms, and function forms.

The action forms in the present study were similar to action forms seen in English-speaking children as described previously (1, 8). That is, these forms were relational words that entailed a relation between the child and some movement. The action forms seen in these data were used to encode actions that were either ongoing, imminent, or immediately past, as determined from the non-linguistic context. The action forms included verb forms, as would be defined by the adult model, and non-verb forms such as "up," "down," and "out." It was observed that 94% of the action forms in the present study would be considered verb forms rather than non-verb forms. This is a particularly interesting finding, since in English-speaking children, the majority of action forms are non-verb forms, with verb forms occurring relatively infrequently.

The substantive forms in the present study were similar to the substantive forms described previously (1, 8) for English-speaking children. These forms referred to specific persons and objects or to classes of objects. In addition, these forms usually referred to objects that showed salient properties of change.

The function forms were similar to the function forms seen in English-speaking children described previously (1). The forms were words that made reference to aspects of behavior that extended across classes of objects and events. That is, these words were used to comment on the existence, nonexistence, and recurrence of objects and events.

As can be seen in Table 2, function forms predominated across all the speech samples. Action forms were initially the second most frequent to occur. By the later speech samples, however, action forms were relatively infrequent, and substantive forms had become the second most frequent to occur. These results are similar to data on English-speaking children, where function forms are reported to be the most frequently used words and other forms occur less frequently.

Discussion and Conclusion. The results from the present study suggest that the first emergence of verbs in the language development of Japanese children may be an early development, at least as can be determined from the measures described above. First, in multi-word utterances, verb relations seemed to be an early semantic-syntactic category which initially predominated and continued to be a major proportion of the data. Second, the expression of verb relations first occurred as verb constituent plus inflection, with constituent relations becoming predominant in

later speech samples. Finally, the children's single words showed that although function forms were predominant throughout the samples, action forms were initially more frequent than substantive forms. Thus, in Japanese children, the patterns of verb development suggest that verbs develop at about the same time as nouns and may even precede them.

Early verb development in Japanese children is in contrast to previous studies on English-speaking children which show that verbs develop later than nouns (4, 5). The patterns of verb development observed for English-speaking children indicate that late verb development is an existing generalization that persists over time. For example, in a diary study by Stern, the child's vocabulary from 15-24 months showed the first emergence of verbs to occur much later than nouns, while nouns predominated throughout the same time period (3).

Additional support for late verb development comes from many different sources. A study of comprehension by Huttenlocher (7) showed that all three children in her study learned nouns before verbs. Data obtained from mothers' reports (8) showed that the proportion of action words undergoes a decline from the first ten to the first fifty words learned, while the proportion of general nouns increased for the same period. Greenfield and Smith (6) reported in their observational study that the first nouns appeared at 7-8 months, while the first two verbs did not come in until 16 and 20 months. A vocabulary study(5) showed that verbs lagged behind nouns in both comprehension and production. Finally, it was reported (4) that the late development of verbs persists over time. It was shown that even at age nine some frequently used verbs are not fully understood by the children.

Explanations for the different patterns of verb development have included ideas about the semantic complexity of the vert system for the data on English-speaking children. For example, one explanation posited for the late development of verbs is that the semantic complexity of the verb system is more difficult to acquire than that of the noun system(4, 5). It has been suggested that verbs are less concrete than nouns because their meanings are not immediately perceivable from sensory information. General nouns, on the other hand, have directly perceptible referents and can be seen as pointers to objects. It is further argued that such perceptual differences between verbs and nouns can lead to conceptual differences for the child. That is, verbs are seen to refer to abstract relationships whose components are culturally determined and whose conceptual framework is diffuse. Nouns refer to concrete referents whose conceptual underpinnings are thus, quite different from verbs.

The explanation provided for the data on English-speaking children does not account for the early development of verbs observed in Japanese children. In fact, the present data suggest that the processes of encoding actions and encoding objects do not necessarily occur in sequence, but rather, are different ways of encoding aspects of the non-linguistic context. Moreover, the process of encoding actions may initially involve different forms. That is, Japanese children may use verb forms to encode actions from the outset, while English-speaking children may

start out using non-verb forms and only later acquire verb forms to encode those same notions.

The determination of the sequence of encoding action and encoding objects may depend on the particular language structure that is learned. In Japanese, for example, the word order seems to make the verb perceptually salient. The word order in Japanese can be either SOV or OSV, with verbs occurring in the terminal position. In addition to the word order of the adult model, the Japanese language structure has two important features: first, the subject and object constituents are optional, while the verb is obligatory, and second, verbs are all inflected regularly. It may be possible, then, to observe the early emergence of verbs in a language where the adult model seems to have features that may make the verb perceptually salient.

Other possible explanations for the different patterns of verb development also exist. For example, one likely possibility is that the mother's input might be an external factor in focusing on the verb. That is, she may direct most of her speech towards action-oriented topics, for example, saying, "What's it doing?" rather than "What's that?". An analysis of mothers' speech in the present study showed no such tendency. However, possibilities such as these need to be more rigorously accounted for before any definitive conclusion can be made.

There are three important conclusions that can be made from the present study. First, the evidence shows that the development of verbs occurs at the same time as the development of nouns and may even precede it. Second, the findings suggest that the processes of encoding actions and encoding objects do not necessarily occur in sequence but rather, can appear as different ways of encoding aspects of the non-linguistic context. Finally, and perhaps most importantly, these results suggest that language development does not occur autonomously with respect to the particular language that children learn, but rather, the structure of the language that children learn can have a considerable effect on the acquisition process involving nouns and verbs.

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